

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (original): A multi-function microwave radio system comprising:

one or more data grid elements, each data grid element comprising:

one or more smart edge wireless hubs comprising: hub-radio means for transmission and reception of radio signals; and a hub-micro-controller means for selecting transmission and reception parameters of said hub-radio means ; and

a central processing unit comprising: a core-radio means for transmission and reception of microwave signals; an internet packet switching means for dynamically routing one or more information packets to said smart edge wireless hubs; and core-micro-controller means for selecting transmission and reception parameters of said core-radio and of said hub-radio, said core-micro-controller means including a transmission type selection means for automatically selecting to switch said hub-radio means and said core-radio means from transmitting and receiving using a first radio modulation type to transmitting and receiving using a second, different, radio modulation type.

Claim 2 (original): The system of claim 1, wherein said core-micro-controller means further includes a packet measurement means for obtaining a quality-of-service measure related to said transmission and reception of said radio signals.

Claim 3 (original): The system of claim 1 wherein said first and second radio modulation types are dynamically selected from the group consisting of Quadrature Amplitude Modulation (QAM), Quadrature Phase Shift Keying (QPSK) and Orthogonal Frequency Division Multiplexing (OFDM), responsive to said quality-of-service measure.

Claim 4 (original): The system of claim 2, wherein said core-micro-controller means further includes an antenna type selection means for automatically selecting to switch said hub-radio means and said core-radio means from transmitting and receiving using a first antenna type to transmitting and receiving using a second, different, antenna type and wherein said

first and second antenna types are selected from the group consisting of an omni antenna and a multiple sector antenna.

Claim 5 (original): The system of claim 2, wherein said core-micro-controller means further includes a transmission frequency selection means for selecting a transmission frequency by reference to a centralized or distributed registrar of all frequencies available to all said smart edge hubs.

Claim 6 (original): The system of claim 5 wherein said transmission frequency selection means is responsive to said quality of service measurement.

Claim 7 (original): The system of claim 2 wherein said core-micro-controller means further includes means for adjusting a transmission power and/or a bandwidth of said core-radio means responsive to said quality-of-service measure.

Claim 8 (original): The system of claim 1, wherein said central processing unit further includes means for establishing a primary and a secondary transmission channel over diverse paths.

Claim 9 (original): The system of claim 8, wherein said central processing unit further includes means for traffic rerouting responsive to a failure to transmit said information packet.

Claim 10 (original): The system of claim 8, wherein said central processing unit further includes means for traffic rerouting responsive a traffic load imbalance.

Claim 11 (original): The system of claim 1, wherein said information packets comprise secured, sealed electronic packets.

Claim 12 (original): The system of claim 11, wherein said secured, sealed electronic packets comprise header means responsive to packet tampering.

Claim 13 (original): A multi-function microwave radio transmission method, comprising the steps of:

- providing a central processing unit comprising a core-radio, a core-micro-controller and an internet packet switch ;

- providing one or more smart edge wireless hubs comprising a hub-radio and a hub-micro-controller;

- automatically selecting to switch said core-radio and said hub-radio from transmitting and receiving using a first radio modulation type to transmitting and receiving using a second radio type; and

- dynamically routing one or more information packets to said smart edge wireless hubs using said internet packet switch and one or more radio signals transmitted from said core-radio.

Claim 14 (original): The method of claim 13, further comprising the step of obtaining a quality-of-service measure related to said transmission and reception of said radio signals using a packet measurement system.

Claim 15 (original): The method of claim 14, wherein said first and second radio modulation types are selected from the group consisting of Quadrature Amplitude Modulation (QAM), Quadrature Phase Shift Keying (QPSK) and Orthogonal Frequency Division Multiplexing (OFDM), and wherein said selection is responsive to said quality of service measure.

Claim 16 (original): The method of claim 14, further comprising the step of automatically selecting to switch said core-radio and said hub-radio from transmitting and receiving using a first antenna type to transmitting and receiving using a second antenna type and wherein said first and second antenna types are selected from the group consisting of an omni antenna and a multiple sector antenna.

Claim 17 (original): The method of claim 14, further comprising selecting a transmission frequency by reference to a centralized or distributed registrar of all frequencies available to all said smart edge hubs.

Claim 18 (original): The method of claim 17 wherein said transmission frequency selection is responsive to said quality of service measurement.

Claim 19 (original): The method of claim 14 further comprising the step of adjusting a transmission power and/or a bandwidth of said core-radio responsive to said quality-of-service measure.

Claim 20 (original): The method of claim 13, further comprising the step of establishing a primary and a secondary transmission channel over diverse paths using said central processing unit.

Claim 21 (original): The method of claim 20, further comprising the step of rerouting traffic responsive to a failure to transmit said information packet.

Claim 22 (original): The method of claim 20, further comprising the step of rerouting traffic responsive to a traffic load imbalance using said central processing unit.

Claim 23 (original): The method of claim 20, wherein said information packets comprise secured, sealed electronic packets.

Claim 24 (original): The system of claim 23, wherein said secured, sealed electronic packets comprise headers capable of detecting packet tampering.

Claim 25 (new): The system of claim 2 wherein said means for automatically selecting to switch said hub-radio means and said core-radio means from transmitting and receiving using a first radio modulation type to transmitting and receiving using a second, different, radio modulation type is responsive to said quality of service measurement.

Claim 26 (new): The method of claim 14 wherein said automatically selecting to switch said core-radio and said hub-radio from transmitting and receiving using a first radio modulation type to transmitting and receiving using a second radio type is responsive to said quality of service measurement.